SPECIFICATION AMENDMENTS

Please amend the specification on page 9, line 13 through page 11, line 10, as follows:

Figure 2 shows the links of Table 1 for conveying signals between the components of the satellite communications system. The forward feeder link 15 conveys or transports signals from the system gateway 50 to the satellite 20B. The return feeder link 25 conveys signals in the reverse direction, from the satellite 20B to the system gateway 50. Signals are transported from the virtual gateway 60 to the satellite 20A associated with the virtual gateway 60 through the virtual uplink 45A. Signals are conveyed in the opposite direction from the satellite 20A to the virtual gateway 60 through the virtual downlink 55A. A user terminal 82 associated with the virtual gateway 60 sends and receives signals through the return service link 85A and forward service link 87A, respectively. The satellite 20B sends communications to the user terminal 80A through the forward service link 65, and the user terminal 80A sends communications back to the satellite 20B through the return service link 75. Satellite 20A and satellite 20B communication with each other through the inter-satellite link pairs 30A and 30B mentioned above. The inter-satellite link 30A includes a forward inter-satellite link 37A for conveying signals from satellite 20A to satellite 20B, and a return inter-satellite link 35A for conveying signals from satellite 20B to satellite 20A. The inter-satellite link 30B includes a forward inter-satellite link 37B for conveying signals from satellite 20B to satellite 20A, and a return inter-satellite link 35B for conveying signals from satellite 20A to satellite 20B.

As stated above, the signals included in a particular link are typically composite signals, grouped into channels within the allocated frequency band of the link. The channels within a link may be further grouped into a number of channel blocks.

The present invention uses orthogonal chip-coded spread-spectrum spreading and despreading to specify the origin, origin antenna beam, destination, and destination antenna beam identities of channel blocks within a link. This is accomplished by first determining a set of chip coded waveforms capable of producing a spreading bandwidth of about the bandwidth of the link. Subsets of the set of chip coded waveforms are then assigned for spreading and de-spreading each channel block according to the source, source antenna beam, destination, and destination antenna beam identities of the channel block. As such, the present invention is referred to herein as Spread Spectrum Code Division Destination Access (SS-CDDA). Each satellite 20A, 20B, 20C in the system may

support routing channel blocks from their source to their destination, across multiple satellite links and antenna beams using this technique.

In a further embodiment, the virtual links 45A, 45B, 55A, 55B and service links 85A, 85B, 87A, 87B to user terminal 82 associated with the virtual gateway 60 may share the same satellite antenna and the same allocated frequency band. In this case the forward service link 87A, 87B and virtual down link 55A, 55B may use the same set of spreading chip-coded waveforms, and the return service link 85A, 85B and virtual up link 45A, 45B may use the same set of spreading chip-coded waveforms.

In a further embodiment, different sets of spreading chip-coded waveforms may be used for the forward service link 87A, 87B and virtual down link 55A, 55B, and different sets of spreading chip-code waveforms may be used for the return service link 85A, 85B and virtual up link 45A, 45B. It should also be noted that the satellite communication system is not limited to the set of inter-satellite links 30A, 30B mentioned above but may include multiple pairs of inter-satellite links.

In a preferred, but not limiting, embodiment there are six sets of predetermined orthogonal chip-coded waveforms: a first set for spreading over the bandwidth of the forward feeder link 15; a second set for spreading over the bandwidth of the return feeder link 25; a third set for spreading over the bandwidth of the forward service link 65, 87B; a ~~forth~~ fourth set for spreading over the bandwidth of the return service link 75, 85B; a fifth set for spreading over the bandwidth of the forward inter-satellite link 37A; and a sixth set for spreading over the bandwidth of the return inter-satellite link 35A.